Ann. Natal Mus. Vol. 29(2) Pages 503–507 Pietermaritzburg October, 1988

A new species of *Priotrochus* (Mollusca: Gastropoda: Trochidae) from south-east Africa

by

D. G. Herbert

(Natal Museum, Pietermaritzburg, South Africa)

ABSTRACT

Priotrochus iris sp. n. is described from the coast of south-east Africa. It is thought to be more closely related to *P. chrysolaema* (von Martens, 1880) and *P. goudoti* (Fischer, 1878) than to *P. obscurus* (Wood, 1828), the type species and the only other member of the genus known from this area. Details of external anatomy and radula morphology are given.

INTRODUCTION

Material of this previously undescribed taxon has been known for some time from the Natal south coast, but was too beach-worn to allow meaningful study. An overall similarity exists with *Monilea (Rossiteria) nucleus* (Philippi, 1849) within the subfamily Umboniinae and it was to that genus that the material was provisionally referred. However, in 1987, whilst dredging off the Zululand coast, the Natal Museum obtained a living specimen with an unworn shell which has permitted further study. It is evident that any similarity with *M. nucleus* is superficial and confined to the shell alone. The radula and external anatomy show none of the synapomorphic characters typical of the Umboniinae (Fretter 1975, Hickman 1983, Herbert 1988). Indeed the present species exhibits very few apomorphic characters and clearly belongs to one of the less specialised trochid subfamilies. Greatest similarity in external anatomy, radula structure and shell morphology exists with the genus *Priotrochus*, and with reasonable certainty I refer this new species to that taxon. Elsewhere (Herbert 1988), I have discussed the subfamilial relationships of the genus.

SYSTEMATICS

Priotrochus Fischer, 1879

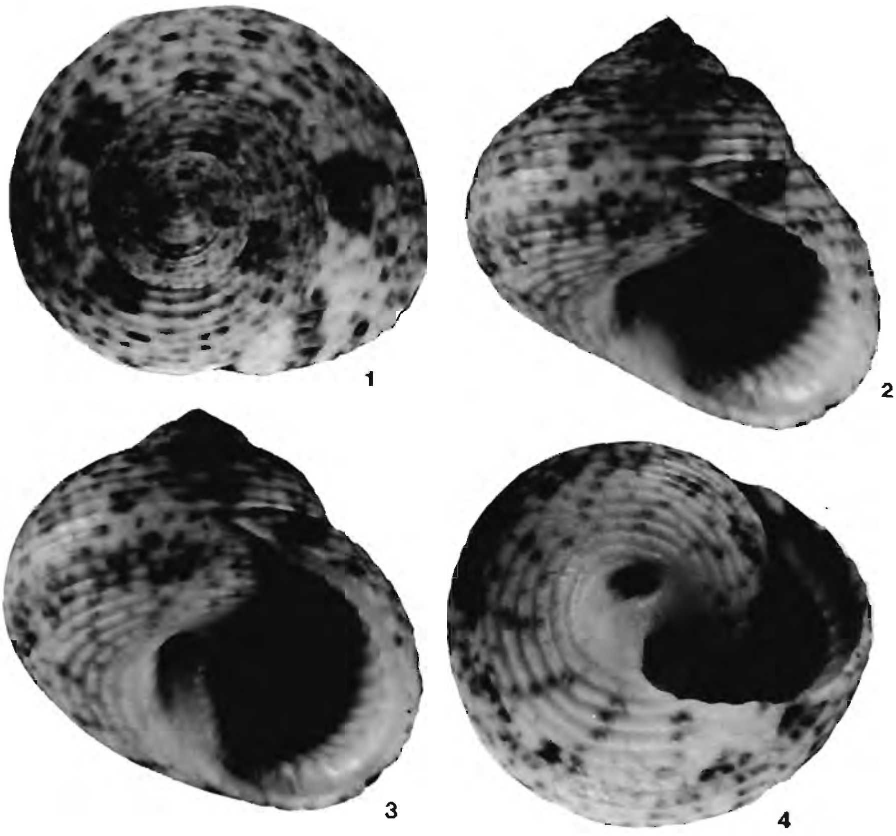
Priotrochus Fischer, 1879: 420, type species *Trochus obscurus* Wood, 1828 (s.d. Wenz, 1938).
Aphanotrochus von Martens, 1880: 296, type species *Trochus obscurus* Wood, 1828 (s.d. Pilsbry, 1889).

Priotrochus iris sp. n.

Figs 1–7

Diagnosis: Shell globose-turbiniform, whorls evenly rounded, spire of moderate height (L/D = 0,8–1,1); sculpture of spiral cords, microscopic spiral lirae and axial pliculae; columella denticulate and interior of aperture with spiral ridges; colour pattern variable, but typically whitish with numerous brightly coloured spots.

Description: Shell globose-turbiniform, spire of moderate height (L/D = 0,8–1,1); whorls evenly rounded, periphery of spire whorls at abapical suture, periphery of body whorl at or near mid-whorl; teleoconch of up to 5 whorls; sculpture predominantly spiral. First teleoconch whorl smooth, 5–6 weak cords begin during second whorl, becoming stronger and developing intermediaries with growth; penultimate whorl with *ca* 8 cords, body whorl with *ca* 9 cords between suture and periphery; base with *ca* 12 slightly weaker and more close-set cords, the last marking the umbilical margin; cords wedge-shaped in profile, usually with microscopic spiral lirae in their intervals. Axial sculpture fine, developing during third whorl and comprising at most close-set microscopic prosocline pliculae in intervals between spiral cords. Microsculpture of cord intervals variable, predominantly spiral in some individuals, axial in others; sometimes spiral and axial elements are subequal in strength, producing a lusterless microcancellation. Umbilicus usually open, but sometimes closed by parietal callus deposit; if open, then often partly obscured by reflected columella lip. Aperture roundly quadrate, angled at junction of columella and parietal lips and where outer lip joins body whorl; columella sloping and with up to 10 evenly spaced denticles (Fig. 3), denticles mostly sub-

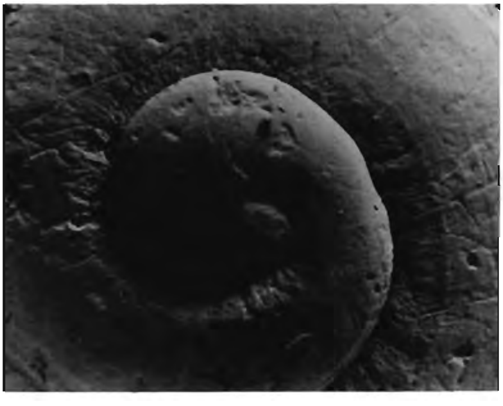


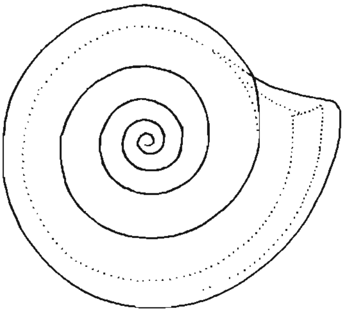
Figs 1–4. *Priotrochus iris* sp. n., holotype, diameter 6,5 mm.

equal in size but evanescing toward parietal region; outer lip thin, becoming thicker inside aperture, at most weakly crenulated by spiral cords; interior nacreous and with well developed spiral ridges; a parietal ridge close to the posterior angle, together with the uppermost labral ridge, form a distinct subsutural channel within the aperture. Sculptural details inside the aperture often obscure in beach worn material.

Protoconch (Fig. 5): Worn in all specimens, but evidently rounded and of *ca* 1¼ whorls, diameter 180–200 μm; junction with teleoconch sinuous and poorly defined; apical portion weakly beaked; sculptural details not apparent.

Operculum (Fig. 6): Multispiral, but with fewer whorls (5–6) than many trochids; nucleus central; corneous, straw coloured; diameter 2,6 mm.


5


6

Figs 5–6. *Priotrochus iris* sp. n.: 5, protoconch, paratype 1, bar = 100 μm; 6, operculum, *ex* holotype, diameter 2,6 mm.

Colour: Extremely variable; ground colour generally whitish, holotype heavily spotted with many shades of blue, green, brown, red and orange, particularly on cords; spots predominantly green to brown on apex, reddish on base; spotting reduced near umbilicus. Other specimens less densely spotted and some with larger brownish blotches, particularly on the adapical surface. The majority of beach worn specimens from Natal have an orange-brown ground colour, often with little spotting, but some are more similar to the holotype.

Dimensions: Holotype, diameter 6,5 mm, length 6,1 mm; largest specimen, diameter 7,6 mm, length 7,6 mm.

Radula (Fig. 7): Similar to that of *P. obscurus* (see Herbert 1988), but less asymmetrical and with much broader rachidian; cusps of laterals less recurved.

External anatomy: Head with well-developed, papillate cephalic tentacles; cephalic lappets present between tentacles, white, separated by a black band down centre of forehead, free margin papillate. Eye stalks postero-lateral to cephalic tentacles, not fused to tentacles; eye black, terminal; right postoptic tentacle present, small. Snout broad with a papillate lateral ridge on each side; lips D-shaped, gently lobed, split mid-ventrally. Neck lobes well developed, that on

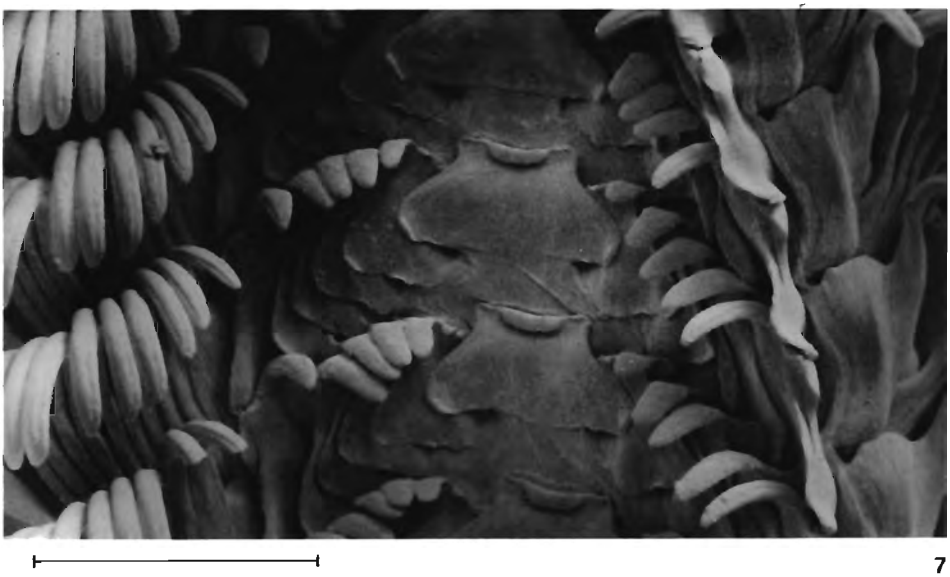


Fig. 7. *Priotrochus iris* sp. n., radula, *ex* holotype, bar = 100 μm.

left arises beneath cephalic tentacle, not fused to eye stalk, its margin is not obviously digitate but bears prominent papillae; right neck lobe of similar size, fused to eye stalk and with a smooth margin; a black pigmented epipodial sense organ lies under each lobe. Epipodial fold fimbriate, three epipodial tentacles arising from its ventral surface, each with a dark epipodial sense organ near its base. Sides of foot, particularly at the edge of sole, papillate. Colour of body mostly whitish, but sides of foot, epipodial sense organs, snout and median portion of head with black pigmentation.

Distribution: North-eastern Transkei to southern Mozambique, beach drift to 50 m depth.

Type material: Holotype, NM D6179/T1, S. E. of Kosi River mouth, N. Zululand (26°54,6'S:32°55,3'E), living, 50 m, medium sand, algae, dredged *MN*; paratypes 1, 2, NM K338/T2, Santa Carolina Is., Bazaruto Archipelago, southern Mozambique, on sand bank between island and mainland; paratypes 3, 4, NM E825/T3, N. of Leven Point, Zululand, 32 m, dredged *MN*, A. Connell; paratypes 5–8, NM E1190/T4, Durban, south beach, dredged sand (*ca* 20 m), J. Marais, 1982; paratypes 9–12, do, J. Marais coll'n; paratypes 13–15, NM E1191/T5, Shelly Beach, near Port Shepstone, Natal, J. Marais, 1977.

Additional locality data: NATAL: Shelly Beach, near Port Shepstone, R. Kilburn, J. Marais (NM 9137, A1988, A6280); Port Shepstone, H. Burnup (NM 8637). TRANSKEI: Mzamba, 1976, J Marais coll'n.

Remarks: The denticulate columella and the spiral ridges inside the outer lip combined with the morphology of the radula and external anatomy clearly indicate that this species is a *Priotrochus*. The variable extent to which the parietal callus covers the umbilicus in *P. iris* is also typical of that genus. *P. obscurus* (Wood, 1828), the type species and the only other species known from south-east Africa, is much larger and has shouldered whorls with prominent nodules. In terms of its small size, evenly rounded, non-nodose whorls and relatively finely corded sculpture, the present species shows greater similarity to *P. chrysolaema* (von Martens, 1880) from Mauritius, and *P. goudoti* (Fischer, 1878) from Madagascar, particularly the former. Both, however, are more elevated than *P. iris* and *P. goudoti* appears never to have an umbilicus. It is possible that *P. iris, P. chrysolaema* and *P. goudoti* are more closely related to each other than they are to *P. obscurus* and may represent a taxon distinct from *Priotrochus s. s.* However, without information regarding the radula and external anatomy of either *P. chrysolaema* or *P. goudoti*, the proposal of such a taxon would be premature.

P. iris is a subtidal species and is evidently rare. It is normally only encountered in beach-drift samples and then usually in a worn condition and in very small numbers. Shelly Beach near Port Shepstone on the Natal south coast is the only locality from which a significant number of specimens has been obtained. Although currently known only from south-eastern Africa its distribution may well prove to be more extensive.

Etymology: *Iris* L. (f), a rainbow, referring to the bright and varied colour pattern.

ABBREVIATIONS

MN = R. V. *Meiring Naudé*
NM = Natal Museum, Pietermaritzburg.
NRIO = National Research Institute for Oceanology, South Africa.

ACKNOWLEDGEMENTS

The holotype was dredged by the Natal Museum using the NRIO research vessel *Meiring Naudé*, the use of which is gratefully acknowledged. Thanks are also extended to Dr Richard N. Kilburn for criticism of the manuscript; Mrs Ruth Fregona for assistance in the preparation of illustrations; Dr Johan P. Marais for loan of material in his collection; the University of Natal, Pietermaritzburg, for SEM facilities.

REFERENCES

FISCHER, P. 1875–1880. *In:* Kiener, L. C. *Species général et iconographie des coquilles vivant. . . .* vol. 11. *Calcar, Trochus, Xenophora, Tectarius, Risella*, Index. Paris.

FRETTER, V. 1975. *Umbonium vestiarium*, a filter feeding trochid. *J. Zool., Lond.* **177**: 541–552.

HERBERT, D. G. 1988. Studies on *Priotrochus obscurus* and the systematic position of *Priotrochus* (Mollusca: Gastropoda: Trochidae). *J. Zool. Lond.* 214: 261–268.

HICKMAN, C. S. 1983. Comparative morphology and ecology of free living suspension-feeding gastropods from Hong Kong. In: *Proceedings of the second international workshop on the malacofauna of Hong Kong and southern China, Hong Kong, 1983.* (Eds B. Morton and D. Dudgeon). Hong Kong: Hong Kong University Press, pp. 217–234.

VON MARTENS, E. 1880. *Mollusken. In:* Möbius, K., *Beiträge zur Meeresfauna de Insel Mauritius und der Seychellen.* Berlin: Gutman, pp. 181–352.

Date received: 25 November 1987.